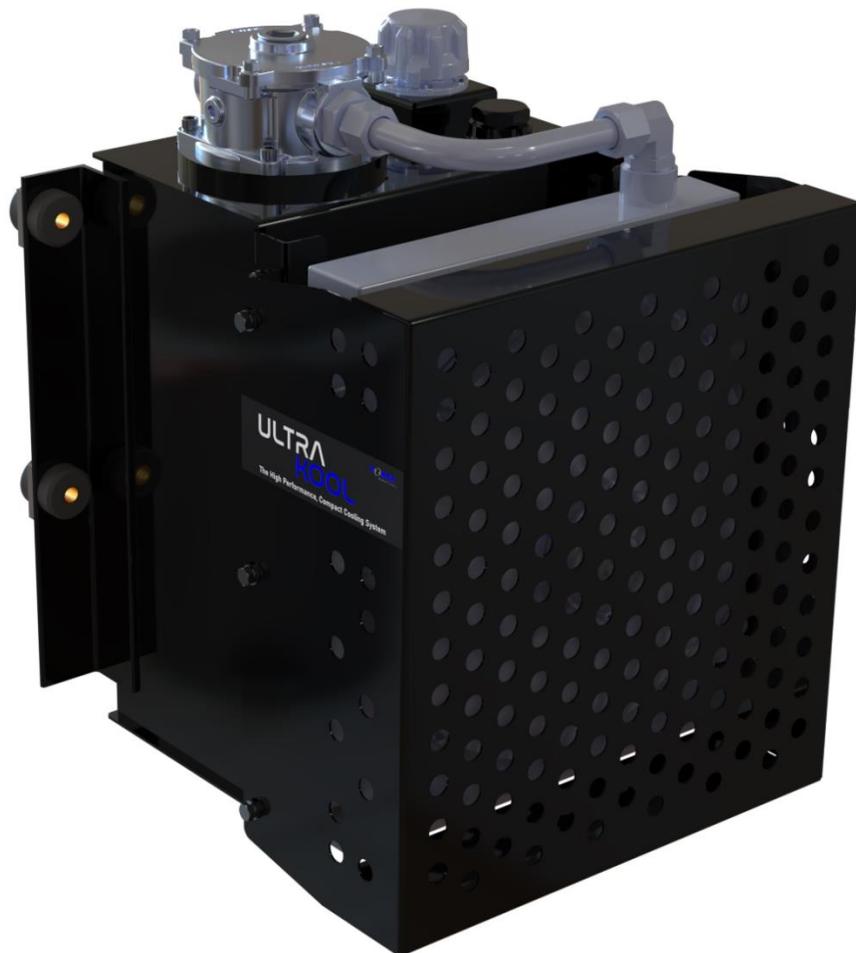




FORCE America Inc.

# ULTRAKOOL Operator's Manual

FORCE America UK12-70-12VDC-FRM-PC Operator's Manual



# ULTRA KOOL



The High Performance, Compact Cooling System

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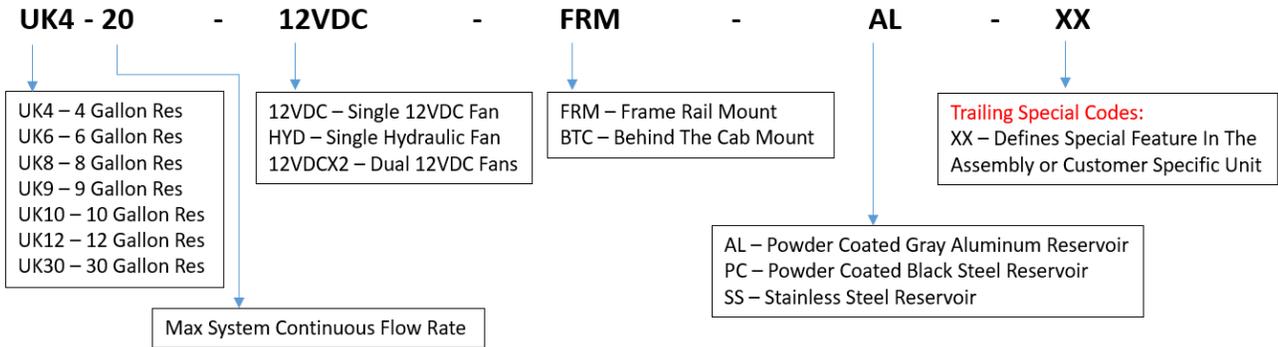
## Warranty Disclaimer

Seller warrants that any goods sold by Seller to Buyer shall be free from defects in material and workmanship for a period of one (1) year from the date of delivery. THIS WARRANTY SHALL BE THE SOLE AND EXCLUSIVE WARRANTY MADE BY SELLER TO BUYER. SELLER HEREBY DISCLAIMS ANY IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

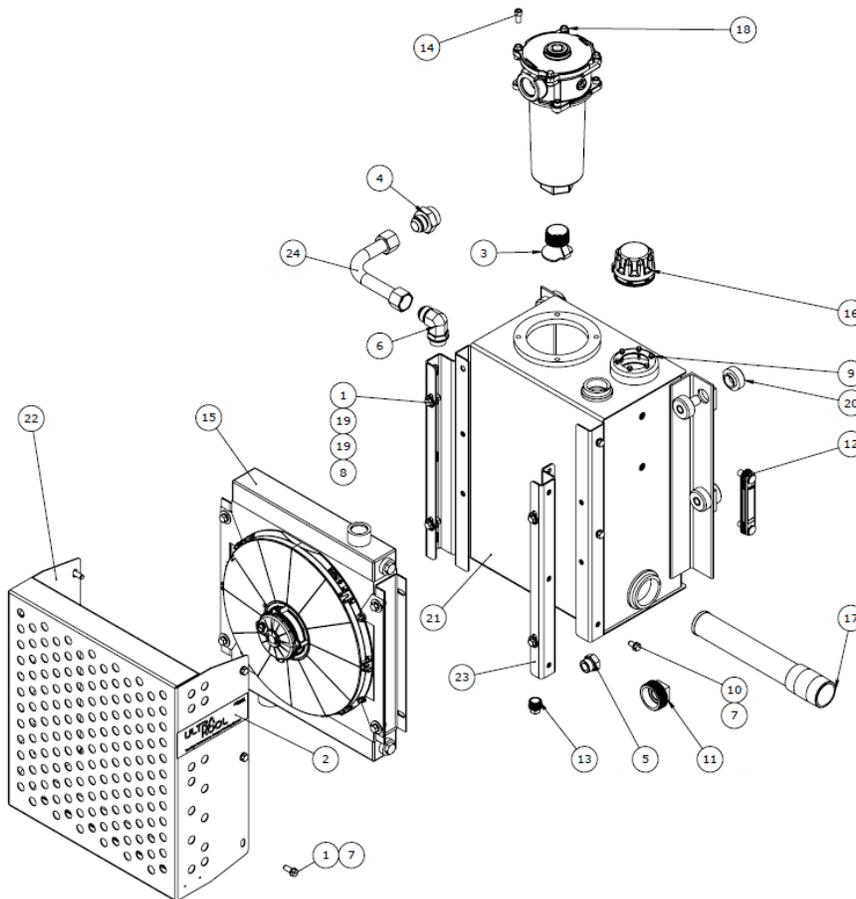
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## UK12-70-12VDC-FRM-PC – Model Code Breakdown



## UK12-70-12VDC-FRM-PC – Exploded Parts View



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## UK12-70-12VDC-FRM-PC – Bill of Material

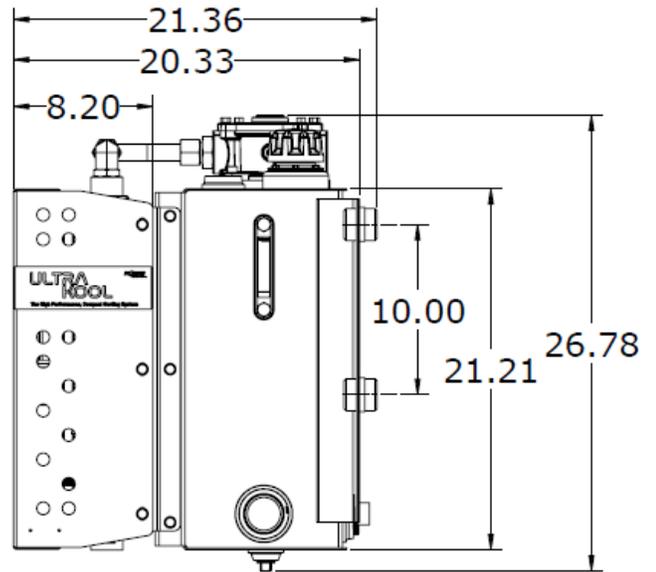
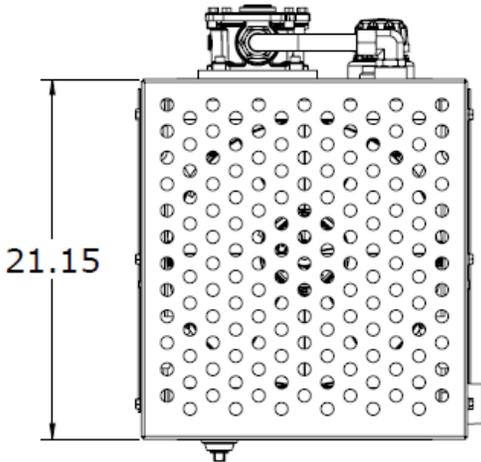
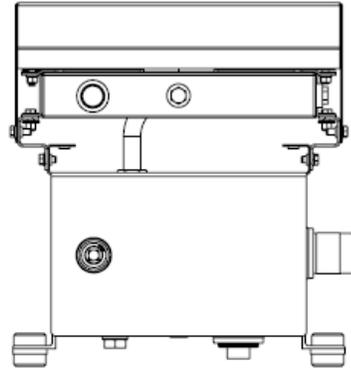
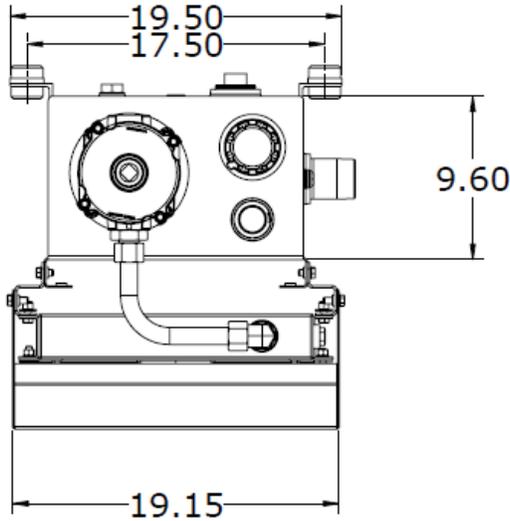
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1011466	3/8"-16 X 1" HHCS, GR5, ZINC	10
2	1011613	ULTRAKOOL LOGO DECAL	2
3	1011760	WELDMENT, DIFFUSER, 1-1/2 NPT THREAD	1
4	1013963	-16 MALE JIC X #20 MALE ORB	1
5	1014103	HEX PLUG, -12 MORB	1
6	1014330	ELBOW 1-5/16 X 12 MALE JIC X 1-5/16 X 12 MALE ORB STEEL	1
7	1014971	3/8" SCREW SIZE LOCK WASHER, MEDIUM SPLIT, ZINC	12
8	1014986	3/8"-16 NYLON-INSERT HEX LOCK NUT, GR5, ZINC	4
9	1015115	#12-14 X 1" SELF DRILLING SCREW, UNSLOTTED HEX WASHER HEAD, ZINC	6
10	1015139	3/8"-16 X 3/4" HHCS, GR5, ZINC	6
11	1030867	2 NPT SQUARE-HEAD PLUG	1
12	1067943	5" LEVEL/BLUE TEMP GAUGE, M12 BOLTS	1
13	1067982	PLUG, MAGNETIC SQUARE HEAD, 3/4"-14 NPTF, STL	1
14	1068876	3/8"-16 X 3/4" SHCS 18-8 STAINLESS	4
15	1087059	THERMAL TRANSFER COOLER 203184	1
16	1090203	FB-10-00-0 03-0-0	1
17	1090430	STRAINER, 2" NPTF MALE THREAD, 2" NPTF OUTLET PORT (ZINGA)	1
18	1090443	SUCTION / RETURN LINE TANK TOP FILTER (ZINGA)	1
19	1091091	3/8" ZINC PLATED USS FLAT WASHER	8
20	1097650	ISOLATOR, BONDED BUSHING & SNUBBER (H.A. KING)	4
21	1128061	WELDMENT, UK 12-70-12VDC, PC	1
22	1167446	WELDMENT, UK12 SHROUD, MA-32 COOLER, PC	1
23	1167447	WELDMENT, UK12 COOLER BRACKET, MA-32, PC	2
24	1208022	FFP, TUBE, UK12 MA-32 TUBE ASSEMBLY, SS	1

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The High Performance, Compact Cooling System

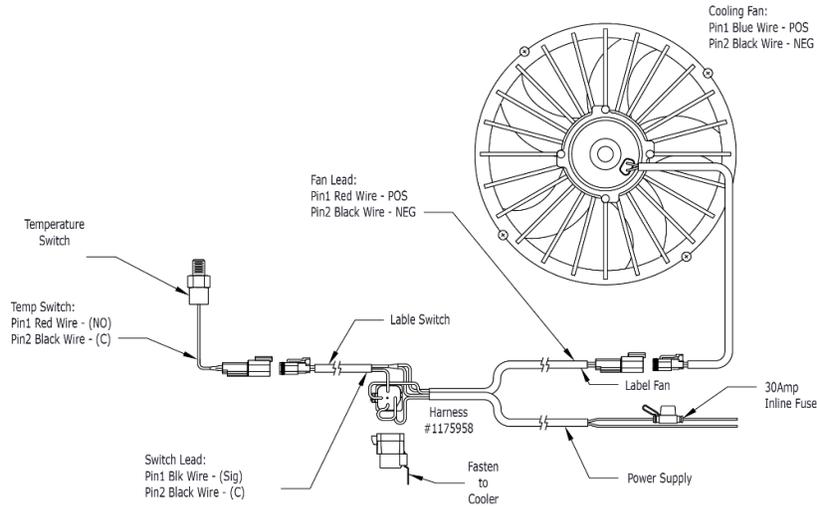
## UK12-70-12VDC-FRM-PC – Dimensions



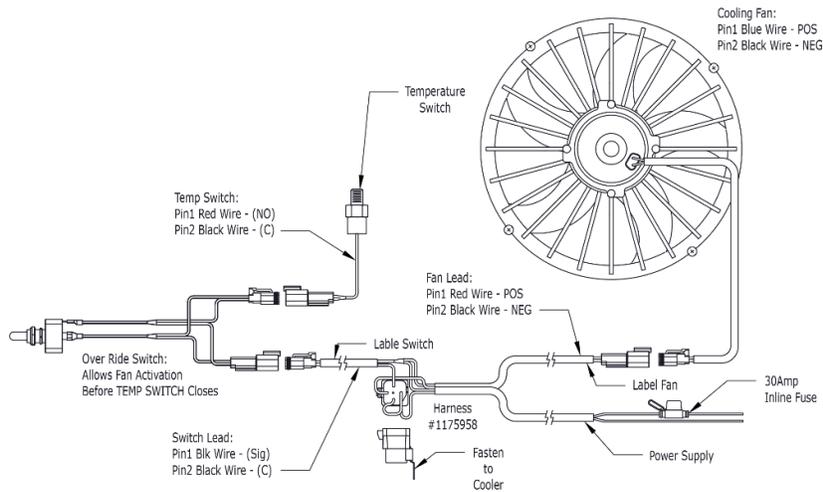
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## UK12-70-12VDC-FRM-PC – Electrical Start Options



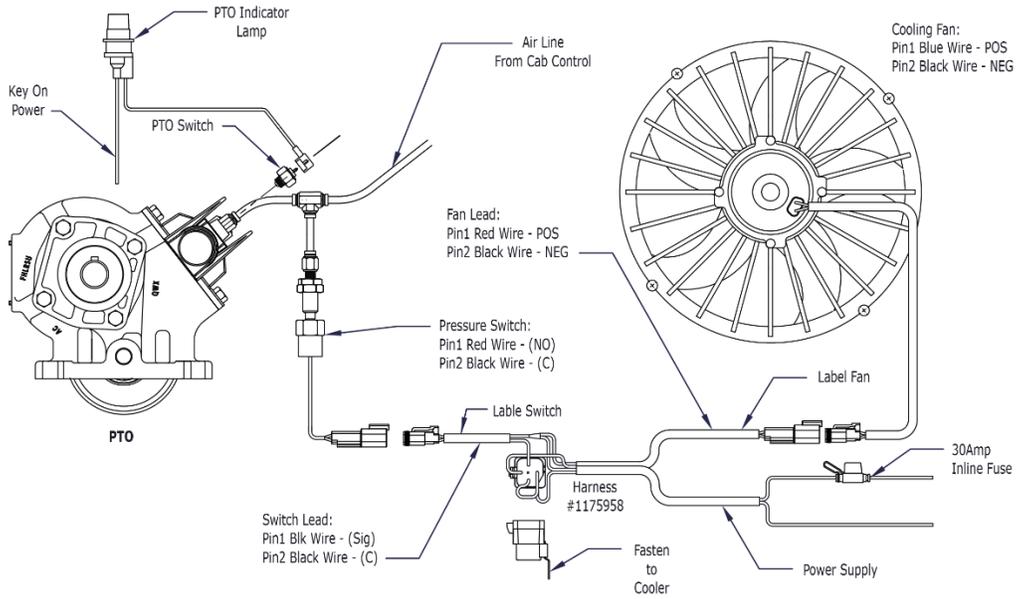
Temperature Switch Fan Activation



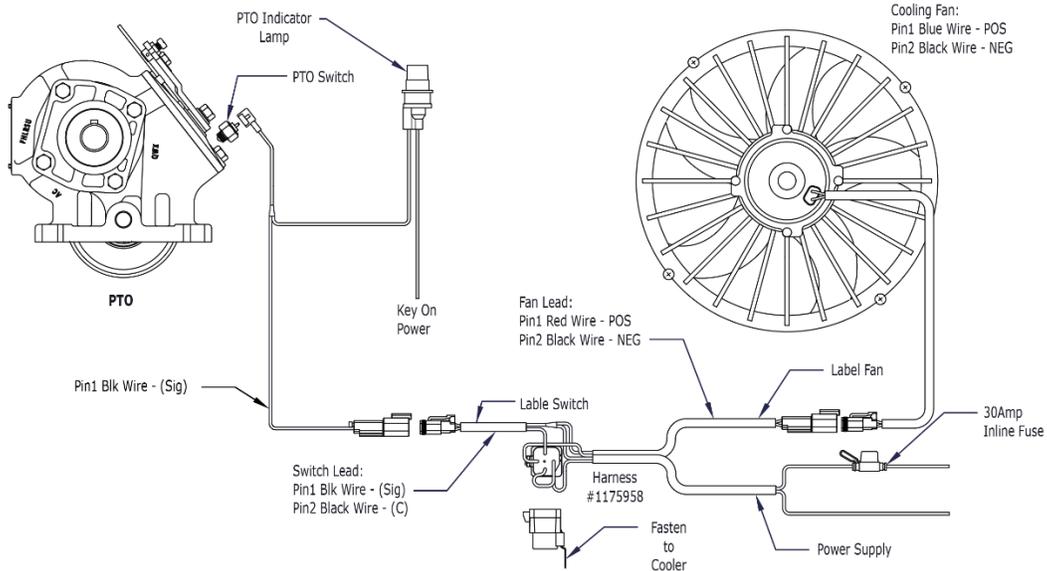
Temperature Switch Fan Activation W/Override

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## The High Performance, Compact Cooling System



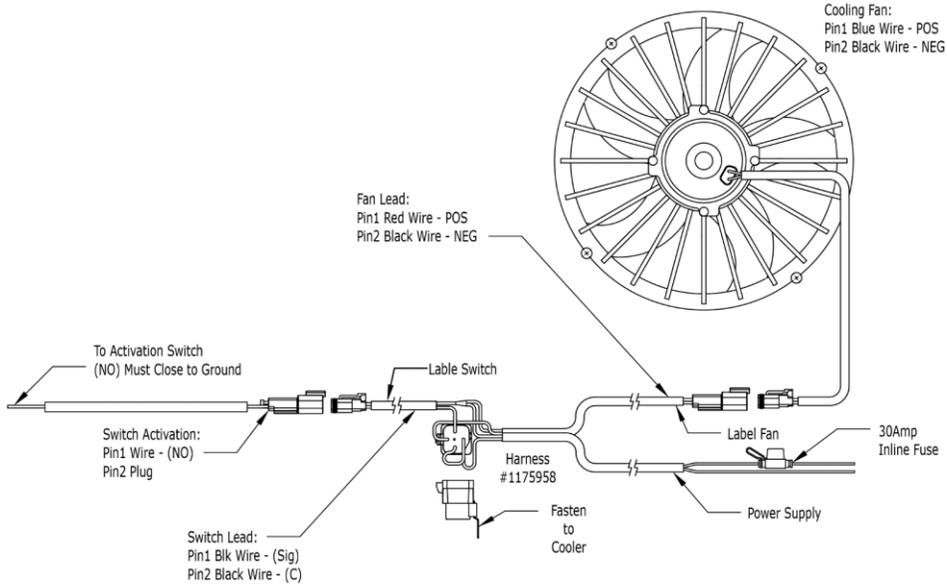
**Air Shift PTO Fan Activation**



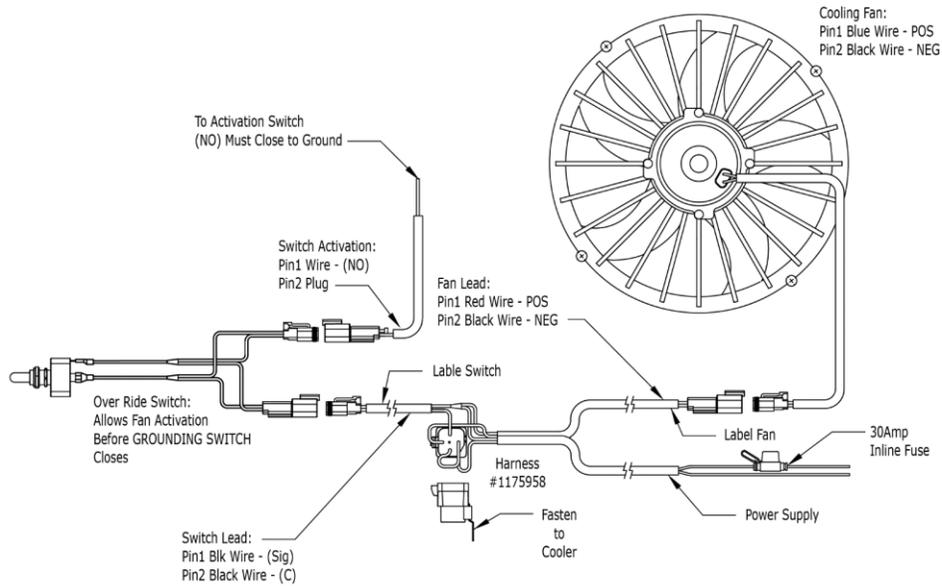
**Cable Shift PTO Fan Activation**

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## The High Performance, Compact Cooling System



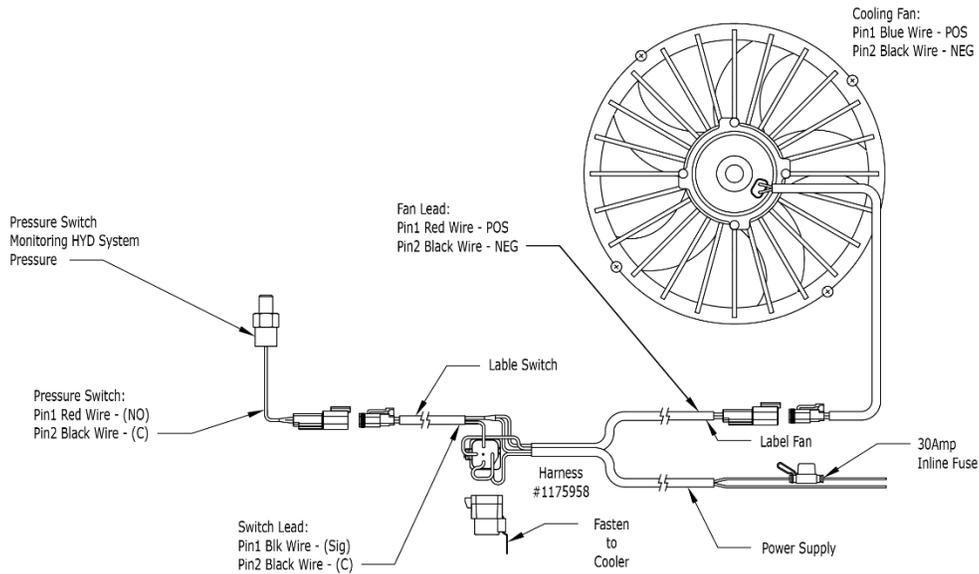
### Grounding Switch Fan Activation



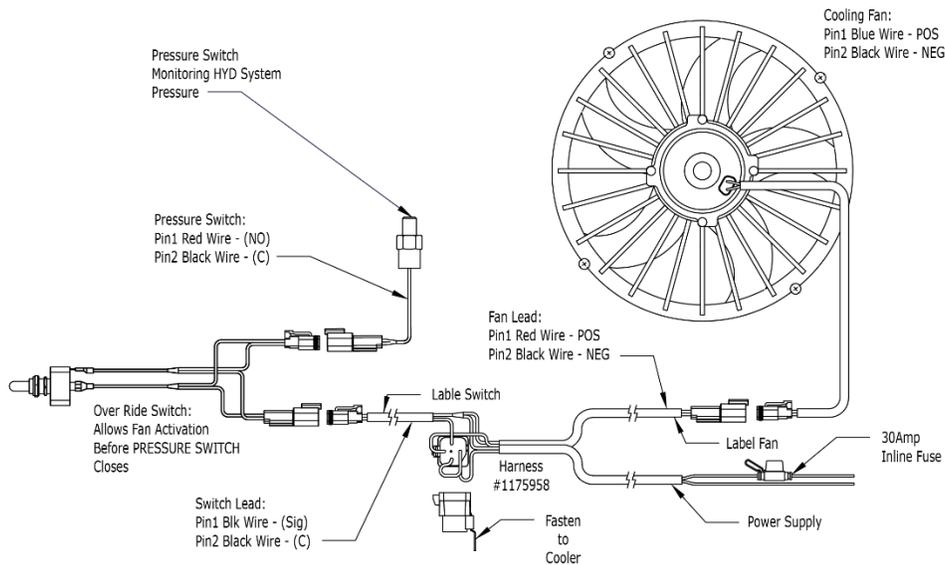
### Grounding Switch Fan Activation W/Override

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### Pressure Switch Fan Activation



### Pressure Switch Fan Activation W/Override

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## ELECTRICAL KIT COMPONENTS

ITEM	DESCRIPTION	QTY
<b>MAIN HARNESS</b>		
1175958	Harness, Main, Cooler, Deutsch, w/ Relay, 144" (Used with MAR-12-225715)	1.00
<b>PRESSURE SWITCH</b>		
1069985	Pressure Switch, Set 25 PSI, Female Deutsch DT04-2P Connection	1.00
<b>TEMPERATURE SWITCH</b>		
1128418	-8 ORB 120°F Temp Switch, 5/8" Long Probe, N.O., 18" Flying Lead	1.00
<b>PLUG CONNECTOR KIT (DT06-2S)</b>		
1017929	Connector, DT, Plug, 2 Way, Size 16, DT06-2S	1.00
1040708	Deutsch Wedglock for DT06-2S	1.00
1100400	Deutsch Female Socket, 1062-16-0122	2.00
<b>RECEPTICAL CONNECTOR KIT (DT04-2P)</b>		
1017930	Connector, DT, Receptacle, 2 Way, Size 16, DT04-2P	1.00
1017933	Wedglock, Receptacle, DT, 2 Way, Size 16, W2P	1.00
1018110	Deutsch male pin, 1060-16-0122	2.00
<b>SAMPLE KIT FOR TEMPURATURE ACTIVATION</b>		
1175958	Harness, Main, Cooler, Deutsch, w/ Relay, 144" (Used with MAR-12-225715)	1.00
1128418	-8 ORB 120°F Temp Switch, 5/8" Long Probe, N.O., 18" Flying Lead	1.00
1017930	Connector, DT, Receptacle, 2 Way, Size 16, DT04-2P	1.00
1017933	Wedglock, Receptacle, DT, 2 Way, Size 16, W2P	1.00
1018110	Deutsch male pin, 1060-16-0122	2.00

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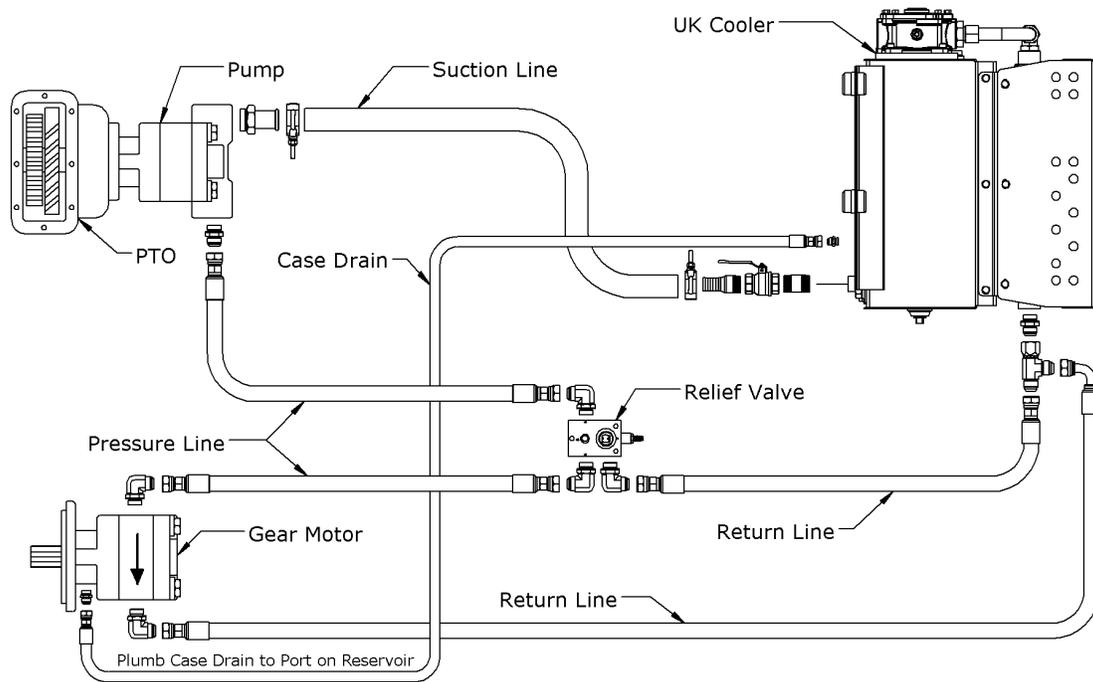


The High Performance, Compact Cooling System

## UK12-70-12VDC-FRM-PC – Typical Plumbing Layout

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## UK12-70-12VDC-FRM-PC – Startup Procedure Steps

1. Mount unit to truck chassis.
2. Plumb all hydraulic lines per plumbing diagrams and application diagrams.

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## The High Performance, Compact Cooling System

3. Fill Reservoir to the high end of the sight gauge.
4. Engage PTO at low RPM levels.
5. Continually add oil to make sure oil level stays visible within the sight gauge.
6. After oil level stays steady check for leaks and repair before continuing.
7. Verify fan operation for either hydraulic or electric fans.
8. Slowly increase PTO speed to get desired pump RPMs.
9. Run system until oil gets to temp (electric) and verify oil is being cooled (both fan types).

Should take roughly 5-10 minutes to verify.

10. Operate all functions of the system to verify the system is properly bled of air.
11. Disengage PTO.
12. System is functional and ready for full operation.

## UK12-70-12VDC-FRM-PC – Maintenance Recommendations

**General** – Look over your Ultra-Kool system before each use to make sure there are no leaks, and all components are good working order.

**Oil** – Replace every 12 months or sooner depending on operational conditions. Only oil based hydraulic fluids should be used in this system. Please contact FORCE America if you have any questions related to the fluid you'd like to use in your system.

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## The High Performance, Compact Cooling System

**Filters** — Replace as indicated by the gauge on the return filter housing. Replacement filter part number can be obtained from the parts breakdown diagram.

**Hoses** — Replace hoses due to any leaks or a visual inspection revealing abrasions or cracking.

**Cooler** — Rinse every 3-6 months with low pressure water (under 200 PSI). When used in dirty environments, it is recommended to rinse the cooler more frequently for optimal performance.

## UK12-70-12VDC-FRM-PC – Troubleshooting

**Cooling** – If system is not cooling properly check the following items.

- Clean or rinse the cooler to remove debris
- Check to make sure the fan is engaging and functioning properly
- Check for additional heat coming from relief valves not functioning properly
- Check to make sure you don't have pump cavitation in your system

**Noise** – If the system is making excessive noise check the following items.

- Fan is engaging and functioning correctly
- Check oil level is in the center of your sight gauge
- Make sure all bolts are securely fastened on the unit

## UK12-70-12VDC-FRM-PC – Product Information

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## Technical Specifications:

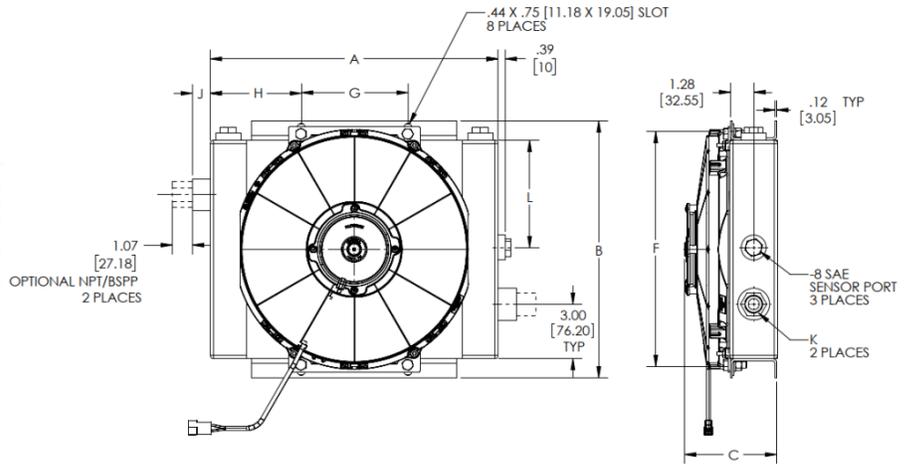
- Height ..... 26.78 inches
- Depth ..... 21.36 inches
- Width ..... 19.15 inches
- Oil capacity ..... 12 gallons
- Fan speed ..... 3600 rpm
- Suction port.....2 – 2" NPT  
.....1 – 12 ORB
- Drain port.....1 – 3/4" NPT
- Case drain.....1 – 8 ORB
- Temp/Level.....1 – 1/4" NPT



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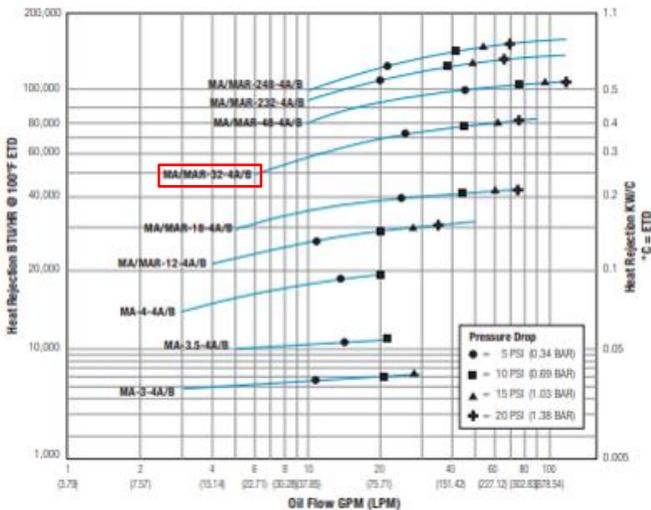
## MA-32-2-4A - Hydraulic Cooler Specifications



Model	A	B	C		F		G	H	J	K		
			Standard	Brushless	Without Bypass Valve	With Bypass Valve				SAE	NPT & BSPP	L
MA-12	13.82 (351)	11.97 (304)	6.36 (162)	6.06 (154)	10.98 (279)	11.86 (301)	5.71 (145)	4.06 (103)	1.00 (25)	#12 SAE	3/4"	4.88 (124)
MA-18	15.84 (402)	14.14 (359)	5.12 (130)	6.2 (157)	12.96 (329)	13.4 (341)	5.87 (149)	4.99 (127)	1.00 (25)	#12 SAE	3/4"	5.91 (150)
MA-32	19.69 (500)	18.46 (469)	6.15 (156)	6.28 (160)	17.30 (439)	17.9 (454)	12.00 (305)	3.84 (98)	1.10 (28)	#16 SAE	1"	8.07 (205)

Note: We reserve the right to make reasonable design changes without notice. All dimensions are in inches (millimeters) unless noted otherwise.

### MA Models - DC Fan Assemblies



Model	DC Amp Draw		Approx. Shipping Weight LBS (KG)
	12V	24V	
MA-3	5.7	3.6	6 (2.72)
MA-3.5	12.5	6.3	9 (4.08)
MA-4	12.5	6.3	16 (7.26)
MA-12	12.5	6.3	19 (8.62)
MA-18	10.6	5.3	23 (10.43)
MA-32	22.2	11.1	28 (12.70)
MA-48	22.2	11.1	45 (20.40)
MA-232	19.3*	9.7*	65 (29.48)
MA-248	19.3*	9.7*	90 (40.80)

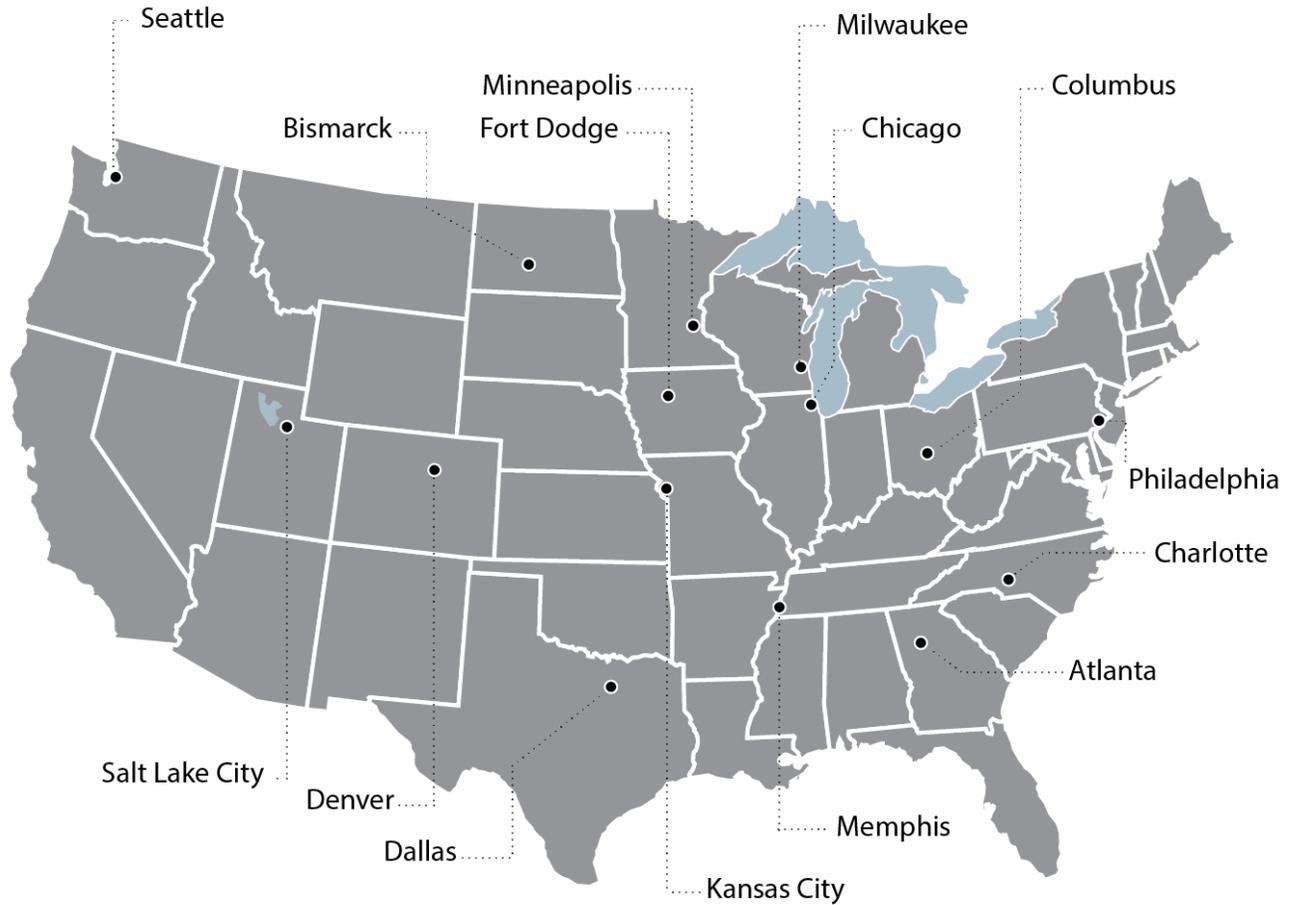
\*AMP draw listed as per FAN.

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## Contact Us



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Bismarck, North Dakota 800-624-7568  
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Columbus, Ohio 888-449-0356  
Dallas, Texas 800-893-7225  
Denver, Colorado 888-833-7711  
Fort Dodge, Iowa 800-362-2994

Kansas City, Missouri 800-383-4724  
Memphis, Tennessee 888-845-5876  
Milwaukee, Wisconsin 800-722-5844  
Minneapolis, Minnesota 800-328-2732  
Philadelphia, Pennsylvania 800-492-6621  
Salt Lake City, Utah 877-230-0505  
Seattle, Washington 800-354-9028